

Claims

1. A method for ordering encoded pictures, the method comprising an encoding step for forming encoded pictures in an encoder, in which at least one group of pictures is formed, a picture ID is defined for each picture of the group of pictures, a transmission step for transmitting said encoded pictures to a decoder, and a rearranging step for arranging the encoded pictures in decoding order, **wherein** in the encoding step a video sequence ID separate from the picture ID is defined for the encoded pictures.
2. The method according to claim 1, **wherein** the video sequence ID being the same for each picture of the same group of pictures, wherein in the decoding step the video sequence ID is arranged to be used for determining which pictures belong to the same group of pictures.
3. The method according to claim 1, **wherein** two or more group of pictures are formed, and different video sequence IDs are defined for said two or more group of pictures.
4. The method according to claim 3, **wherein** the decoding order of the pictures is determined according to the video sequence ID.
5. The method according to claim 3, **wherein** the decoding order of the video sequence IDs are transmitted on transmission layer, and the picture IDs are transmitted on video layer.
6. A method for decoding encoded picture stream in a decoder, said stream comprising at least one group of pictures, for each picture of the group of pictures a picture ID has been defined, and for the group of pictures a video sequence ID separate from the picture ID has been defined, wherein in the decoding, the video sequence ID is used for determining which pictures belong to the same group of pictures.
7. The method according to claim 6, **wherein** one picture of each group of pictures is an independently decodable picture for which said video sequence ID is defined, at least one sub-sequence is formed of the pictures of the group

of pictures, and that each picture of the sub-sequence has the same video sequence ID as the independently decodable picture of the same group of pictures.

5 8. An encoder for encoding pictures and for ordering encoded pictures, comprising an arranger for forming at least one group of pictures of the encoded pictures and defining a picture ID for each picture of the group of pictures, **wherein** the encoder further comprising a definer for defining a video
10 sequence ID separate from the picture ID for the encoded pictures, the video sequence ID arranged to be the same for each picture of the same group of pictures.

9. A decoder for decoding the encoded pictures for forming decoded pictures, comprising a rearranger for arranging the encoded pictures in decoding order,
15 **wherein** the decoder further comprising a processor for determining which pictures belong to the same group of pictures by using the video sequence ID.

10. A computer program comprising machine executable steps for performing a method for ordering encoded pictures, the method comprising an encoding
20 step for forming encoded pictures in an encoder, in which at least one group of pictures is formed, a picture ID is defined for each picture of the group of pictures, a transmission step for transmitting said encoded pictures to a decoder, a rearranging step for arranging the encoded pictures in decoding order, **wherein** in the encoding step a video sequence ID separate from the
25 picture ID is defined for the encoded pictures.

11. A signal including encoded pictures, at least one group of pictures is formed from the encoded pictures, a picture ID is defined for each picture of the group of pictures, **wherein** a video sequence ID separate from the picture
30 ID is defined in the signal for the encoded pictures, the video sequence ID being the same for each picture of the same group of pictures.

12. A method for ordering encoded pictures comprising a first and a second encoded picture, at least a first transmission unit is formed on the basis of the
35 first encoded picture, at least a second transmission unit is formed on the basis of the second encoded picture, **wherein** a first identifier is defined for

said first transmission unit and a second identifier is defined for said second transmission unit, the first and the second identifiers being indicative of the respective decoding order of information included in the first transmission unit and information included in the second transmission unit.

5

13. The method according to claim 12, **wherein** the identifier is defined as an integer number.

10

14. The method according to claim 13, **wherein** a larger integer number with wrap around indicates a later decoding order.

15

15. The method according to claim 12, **wherein** said first transmission unit includes a first slice and said second transmission unit includes a second slice.

20

16. A device for ordering encoded pictures comprising a first and a second encoded picture, the device comprising an arranger for forming at least a first transmission unit on the basis of the first encoded picture and at least a second transmission unit on the basis of the second encoded picture, **wherein** the device further comprising a definer for defining a first identifier for said first transmission unit and a second identifier for said second transmission unit, the first and the second identifiers being indicative of the respective decoding order of information included in the first transmission unit and information included in the second transmission unit.

25

17. The device according to claim 16, **wherein** it is a gateway device.

30

18. The device according to claim 16, **wherein** it is a mobile communication device.

35

19. The device according to claim 16, **wherein** it is a streaming server.

20. An encoder for encoding pictures and for ordering encoded pictures comprising a first and a second encoded picture, the encoder comprising an arranger for forming at least a first transmission unit on the basis of the first encoded picture and at least a second transmission unit on the basis of the

second encoded picture, **wherein** the encoder further comprising a definer for defining a first identifier for said first transmission unit and a second identifier for said second transmission unit, the first and the second identifiers being indicative of the respective decoding order of information included in the first transmission unit and information included in the second transmission unit.

21. The device according to claim 20, **wherein** said arranger is arranged to include a first slice into said first transmission unit and a second slice into said second transmission unit.

22. A decoder for decoding the encoded pictures for forming decoded pictures, the encoded pictures comprising a first and a second encoded picture transmitted in at least a first transmission unit formed on the basis of the first encoded picture and in at least a second transmission unit formed on the basis of the second encoded picture, **wherein** the decoder further comprising a processor for determining the decoding order of information included in the first transmission unit and information included in the second transmission unit on the basis of a first identifier defined for said first transmission unit and a second identifier defined for said second transmission unit.

23. A system comprising an encoder for encoding pictures and for ordering encoded pictures comprising a first and a second encoded picture, the encoder comprising an arranger for forming at least a first transmission unit on the basis of the first encoded picture and at least a second transmission unit on the basis of the second encoded picture, and a decoder for decoding the encoded pictures, **wherein** the system further comprising in the encoder a definer for defining a first identifier for said first transmission unit and a second identifier for said second transmission unit, the first and the second identifiers being indicative of the respective decoding order of information included in the first transmission unit and information included in the second transmission unit, and a processor in the decoder for determining the decoding order of information included in the first transmission unit and information included in the second transmission unit on the basis of said first identifier and said second identifier.

24. A computer program comprising machine executable steps for performing a method for ordering encoded pictures comprising a first and a second encoded picture, for forming at least a first transmission unit on the basis of the first encoded picture, and at least a second transmission unit on the basis of the second encoded picture, **wherein** the computer program further comprising machine executable steps for defining a first identifier for said first transmission unit and a second identifier for said second transmission unit, the first and the second identifiers being indicative of the respective decoding order of information included in the first transmission unit and information included in the second transmission unit.

25. A computer program product for storing a computer program comprising machine executable steps for performing a method for ordering encoded pictures comprising a first and a second encoded picture, for forming at least a first transmission unit on the basis of the first encoded picture, and at least a second transmission unit on the basis of the second encoded picture, **wherein** the computer program further comprising machine executable steps for defining a first identifier for said first transmission unit and a second identifier for said second transmission unit, the first and the second identifiers being indicative of the respective decoding order of information included in the first transmission unit and information included in the second transmission unit.

26. A signal including at least a first transmission unit formed on the basis of a first encoded picture, and at least a second transmission unit formed on the basis of a second encoded picture, **wherein** the signal further including a first identifier defined for said first transmission unit and a second identifier defined for said second transmission unit, the first and the second identifiers being indicative of the respective decoding order of information included in the first transmission unit and information included in the second transmission unit.

27. A module for ordering encoded pictures for transmission, the encoded pictures comprising a first and a second encoded picture, the module comprising an arranger for forming at least a first transmission unit on the basis of the first encoded picture and at least a second transmission unit on the basis of the second encoded picture, **wherein** the module further

comprising a definer for defining a first identifier for said first transmission unit and a second identifier for said second transmission unit, the first and the second identifiers being indicative of the respective decoding order of information included in the first transmission unit and information included in the second transmission unit.

28. A module for reordering encoded pictures for decoding, the encoded pictures comprising a first and a second encoded picture transmitted in at least a first transmission unit formed on the basis of the first encoded picture and in at least a second transmission unit formed on the basis of the second encoded picture, **wherein** the module further comprising a processor for determining the decoding order of information included in the first transmission unit and information included in the second transmission unit on the basis of a first identifier defined for said first transmission unit and a second identifier defined for said second transmission unit.